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continued, since the distance between the probe and sample will be held constant, the separating movement cannot be realized. Therefore, when moving the probe to the next sampling position and again approaching it to the sample surface, it is necessary to approach it slowly and carefully while producing an intermittently generated triangular drive signal and controlling the position in the height direction of the probe as shown by the time charts of FIG. 5 in the publication. Therefore, the problem arises that time is taken for the probe to approach to the sample. In addition, since the above approaching movement of the probe is necessary, the control of the probe movement becomes complicated.--

Pages 28 to 30, the paragraph bridging these pages from page 28, line 24 to page 30, line 4, replace the paragraph with the following:

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--The cantilever 15 arranged above the sample 13 is provided with a detection system for detecting the height position of the probe 14 with respect to the sample surface (Z-direction displacement). The detection system is a light lever type photo detection system comprised using the flex deformation of the cantilever 15 and a laser beam. The light lever type photo detection system is comprised of a laser

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light source 22 for focusing a laser beam 21 on a reflection surface formed on the back of the cantilever and a 4-division photodiode 23 for example receiving the laser beam 21 reflected at the back. The laser light source 22 and photodiode 23 are for example provided at the bottom of the piezoelectric element 61 and operate together along with the operation of the piezoelectric element 61. The reflected spot of the laser beam 21 reflected at the back of the cantilever 15 strikes the 4-division light receiving surface of the photodiode 23. If the distance between the probe and the sample changes in the state where the probe receives the atomic force from the sample surface, the atomic force received by the probe will change, the height position of the probe 14 will displace, and the amount of flex deformation of the cantilever 15 will change. The reflected spot of the laser beam 21 at the light receiving surface of the photodiode 23 displaces from the center position in accordance with the amount of change of the amount of flex deformation of the cantilever 15, so the height position of the probe 14 (cantilever 15) with respect to the sample surface is adjusted by the later mentioned servo control system so that the distance between the probe and sample is held at a set constant reference distance. Due to this, the position of the